Cognitive Assessment and Evaluation Following Acute Concussion

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Disclosure

Tharshini Chandra has no relevant financial interests to disclose.

Learning Objectives

1. Discuss the utility of cognitive assessment in the acute and sub-acute stages post-concussion.

2. Articulate appropriate recommendations and timelines for cognitive assessment post-concussion.

Background

- Measuring cognitive difficulties post-concussion is challenging.

- Two common paradigms:
  - ‘Baseline’ testing: an individual completes neurocognitive tests before a concussion occurs, followed by post-injury testing for comparative purposes.
  - Published norms: compare an individual’s post-concussion neurocognitive test scores to published norms.

- At the Hull-Ellis Concussion Clinic, we’ve examined the utility of neurocognitive testing to screen for cognitive impairment following concussion in a general adult population.

Neurocognitive Tests Administered

- Wechsler Test of Adult Reading (pre-morbid functioning)
- Trails A & B (attention; visual scanning; ‘set’ shifting; processing speed)
- WAIS-IV Symbol Search (processing speed)
- WAIS-IV Coding (processing speed)
- Dot Counting (a measure of performance validity)
  - Participants who failed validity measures were excluded from datasets
- WAIS-IV Digit Span (attention; working memory; validity)
  - Participants who failed validity measures were excluded from datasets
- Rey Auditory Verbal Learning Test (learning and memory)

Conclusion #1:

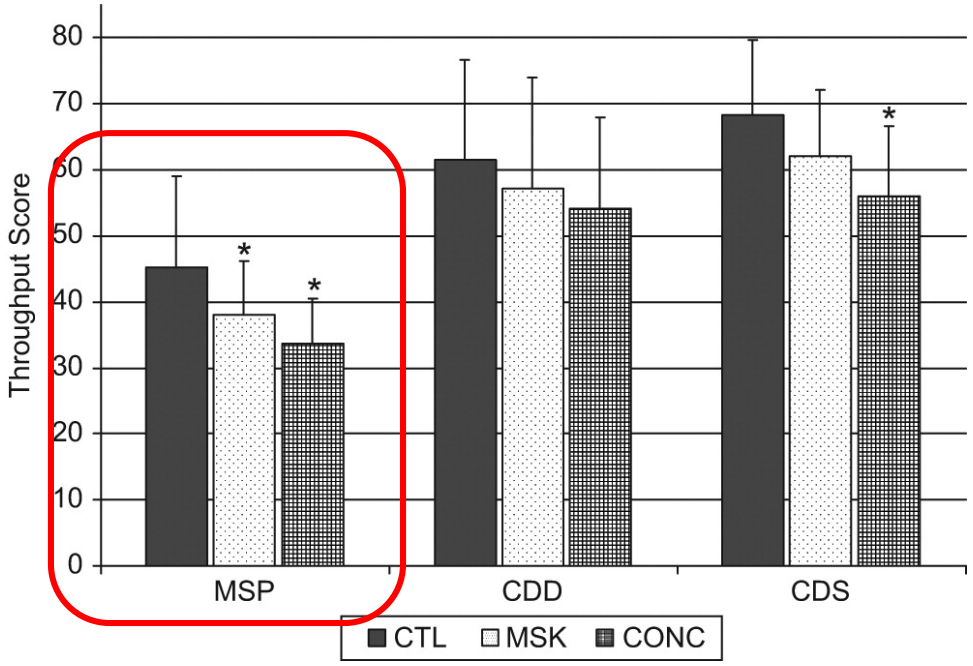
Objective cognitive test scores using a norms-based approach were **insensitive to subjective cognitive complaints of 'impairment'** related to concussion.

Conclusion #2:

Cognition does appear to be different post-concussion compared to controls, but **more specific normative data** (i.e., including education as an adjusted variable) may be needed **to accurately evaluate cognitive performance** post-concussion.

When should cognitive assessment and evaluation take place post-concussion?

Any symptoms may impact cognition



- Case control study, n=36 athletes with no injuries (CTL), n=18 athletes with musculoskeletal injuries (MSK), n=18 athletes with concussion (CONC); compared to baseline testing scores.
- Injured athletes were tested within 72 hours of injury.
- Significant differences found between controls, and athletes with concussion and athletes with musculoskeletal injuries.
- No significant differences between athletes with concussion and athletes with musculoskeletal injuries.

Hutchinson et al. American Journal of Sports Medicine. 2011

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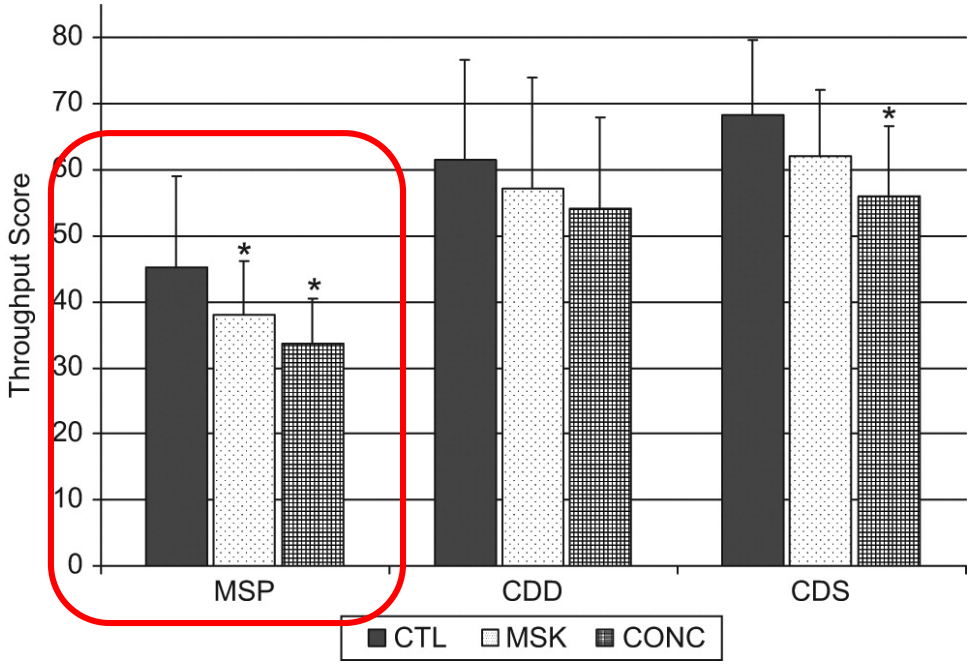

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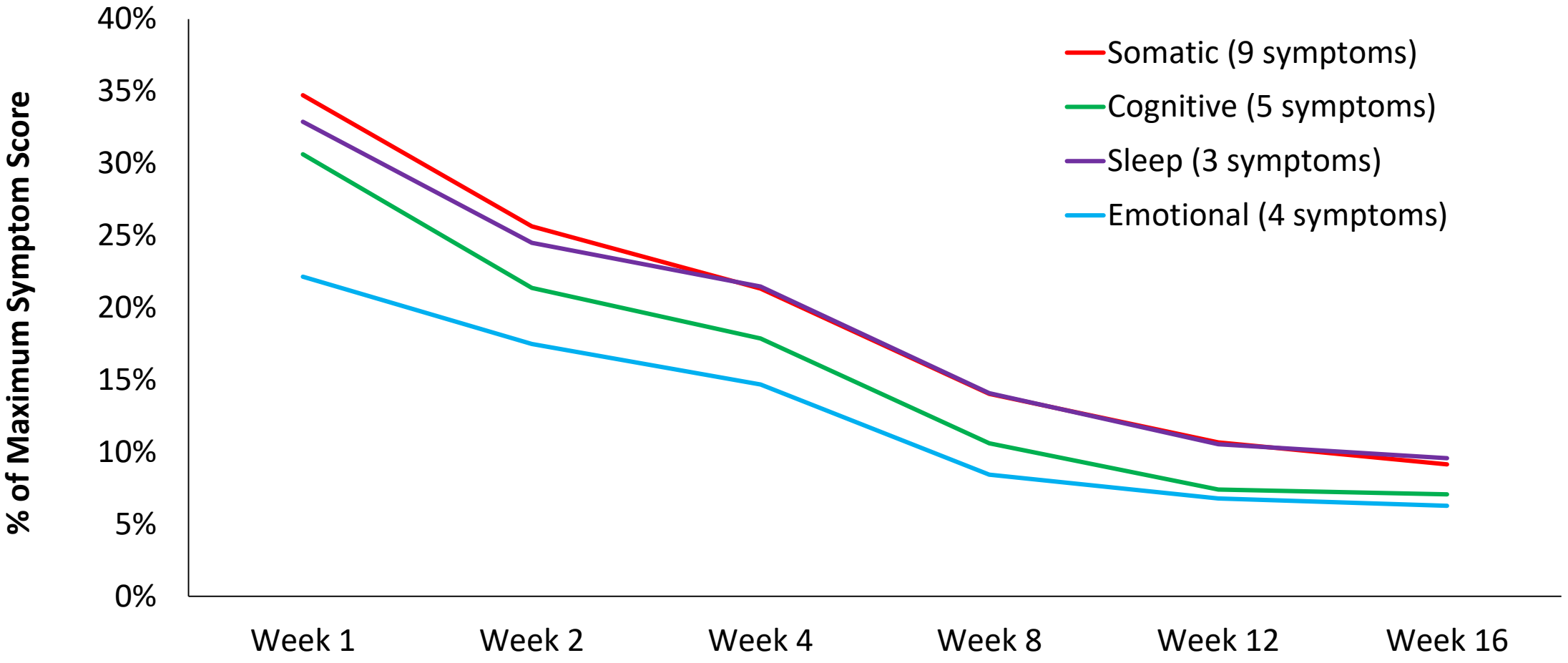
Injuries, in general, may produce a degree of cognitive disruption.

Hutchinson et al. American Journal of Sports Medicine. 2011

When should we expect symptoms to go away?



Comper et al. Frontiers of Neurology. 2023

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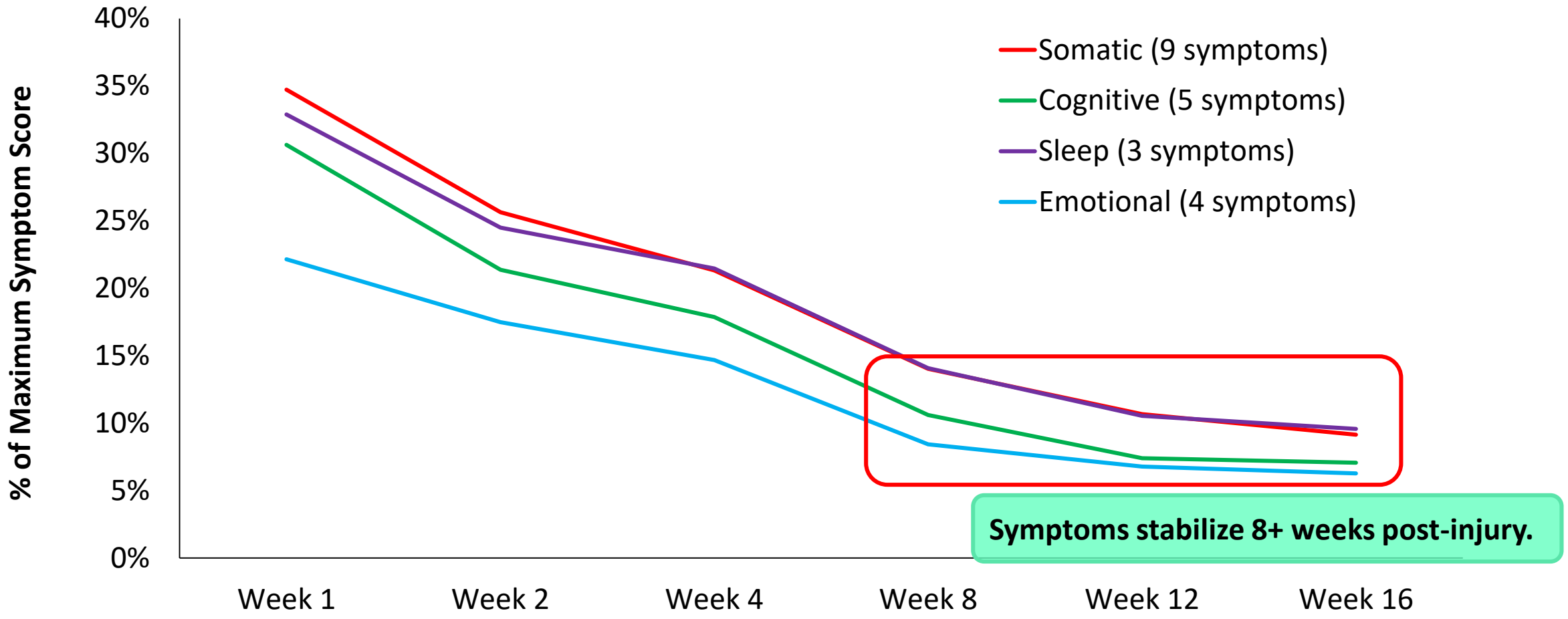

Comper et al. Frontiers of Neurology. 2023

Assessment Recommendations:

It's important to recognize that **cognition may have changed!** Provide **education and reassurance** to the patient.

Educate patients that a **formal cognitive assessment** while he or she has symptoms can be both challenging and **even mis-informative**.

Clinician should focus in **provide treatment and education** to help manage any specific self-reported symptoms.

When **all symptoms have resolved** (8+ weeks post-injury), if there are **still cognitive complaints in addition to functional concerns,** a formal **cognitive assessment is recommended.**

With thanks…

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